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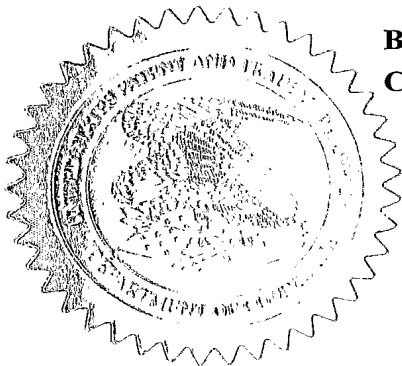
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FILING DATE UNDER 35 USC 111.**

APPLICATION NUMBER: 60/546,252

FILING DATE: February 20, 2004

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**FEE TRANSMITTAL
for FY 2003**

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT

(\$) 160.00

Complete if Known

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Filing Date

First Named Inventor

Jessie Jianxin Zhao

Examiner Name

Art Unit

Attorney Docket No.

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METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:Deposit
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☒ Charge fee(s) indicated below ☒ Credit any overpayments☐ Charge any additional fee(s) during the pendency of this application☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 750	2001 375	Utility filing fee	
1002 330	2002 165	Design filing fee	
1003 520	2003 260	Plant filing fee	
1004 750	2004 375	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	160.00

SUBTOTAL (1) (\$)

160.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent	-20** =	X	
Multiple Dependent	-3** =	X	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 84	2201 42	Independent claims in excess of 3
1203 280	2203 140	Multiple dependent claim, if not paid
1204 84	2204 42	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

(\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65		Surcharge - late filing fee or oath	
1052 50	2052 25		Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130		Non-English specification	
1812 2,520	1812 2,520		For filing a request for <i>ex parte</i> reexamination	
1804 920*	1804 920*		Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*		Requesting publication of SIR after Examiner action	
1251 110	2251 55		Extension for reply within first month	
1252 410	2252 205		Extension for reply within second month	
1253 930	2253 465		Extension for reply within third month	
1254 1,450	2254 725		Extension for reply within fourth month	
1255 1,970	2255 985		Extension for reply within fifth month	
1401 320	2401 160		Notice of Appeal	
1402 320	2402 160		Filing a brief in support of an appeal	
1403 280	2403 140		Request for oral hearing	
1451 1,510	1451 1,510		Petition to institute a public use proceeding	
1452 110	2452 55		Petition to revive - unavoidable	
1453 1,300	2453 650		Petition to revive - unintentional	
1501 1,300	2501 650		Utility issue fee (or reissue)	
1502 470	2502 235		Design issue fee	
1503 630	2503 315		Plant issue fee	
1460 130	1460 130		Petitions to the Commissioner	
1807 50	1807 50		Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180		Submission of Information Disclosure Stmt	
8021 40	8021 40		Recording each patent assignment per property (times number of properties)	
1809 750	2809 375		Filing a submission after final rejection (37 CFR 1.129(a))	
1810 750	2810 375		For each additional invention to be examined (37 CFR 1.129(b))	
1801 750	2801 375		Request for Continued Examination (RCE)	
1802 900	1802 900		Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

SUBMITTED BY

(Complete if applicable)

Name (Print/Type)	Thaddius J. Carvis	Registration No. (Attorney/Agent)	26,110	Telephone	703 737-7817
Signature		Date	February 20, 2004		

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PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

2004 DENMANU1 00000019 502735 60546252

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(AVB 102)

UNITED STATES PROVISIONAL PATENT APPLICATION

of

Jessie Jianxin Zhao
27 Marion Drive
Plainsboro NJ 08536

For

Microwaveable and Oven-Bakable Coated Food Products

Attorney for Applicant
Thaddius J. Carvis
LAW OFFICES OF THADDIUS J. CARVIS
102 NORTH KING STREET
LEESBURG, VA 20176
(703) 737-7817

Customer No. 37138

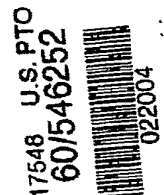
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February 20, 2003


Thaddius J. Carvis



DESCRIPTION

Microwaveable and Oven-Bakable Coated Food Products

Background of the Invention

[0001] This invention relates to a new ingredient composition that when used in frozen coated food products (par fried, raw or full fried) provides a crispy texture after microwaving or oven-baking, similar to that of deep fat fried coated foods.

[0002] Coated food products are very popular globally, such as various frozen battered and/or breaded fish, chicken, other meat and vegetable products. It is desirable to have crispy texture after cooking at home or food service for consumption. However, the crispy texture is particularly difficult to achieve when the coated food product is microwaved or oven baked and rarely if ever as crispy as fried foods. Another major challenge is to maintain the crispy texture after reconstitution for a longer time under heating lamp or at room temperature.

[0003] Traditional batters contain various flours, starches, dextrins, etc., which have a tendency to become soggy or tough and chewy after microwaving or oven baking the frozen coated foods. Prior art has shown attempts to use a stabilizer composition to pre-treat the meat or vegetable substrate or to use specialized packaging containing various susceptors for microwave heated coated food products. None have used this novel ingredient composition in the batter system.

[0004] It would be desirable to have a solution to the problem, without resorting to exotic packaging or formulations.

Brief Summary of the Invention

[0005] It is a primary object of the invention to provide a dry mix for preparing a coated food products having a desirable crisp character when heated for serving by microwave or other oven.

[0006] It is another object of the invention to provide improved methods for preparing coated food products for final oven preparation.

[0007] It is yet another object of the invention to provide improved edible products characterized by a crispy texture after microwaving or oven-baking, similar to that of deep fat fried coated foods.

[0008] It is yet another object of the invention to provide methods for making improved edible products characterized by a crispy texture after microwaving or oven-baking, similar to that of deep fat fried coated foods.

[0009] These and other objects are achieved by this invention, which provides a new ingredient composition, methods of making and using it and products improved by it, that when used in frozen coated food products (par fried, raw or full fried) provides a crispy texture after microwaving or oven-baking, similar to that of deep fat fried coated foods.

[0010] The composition of the invention, in one aspect, comprises a combination of dietary fiber (soluble and/or insoluble) (preferably potato fiber) and/or insoluble vegetable protein, preferably potato protein.

Detailed Description of the Invention

[0011] The compositions of the invention, in effect, provide a crispy coating like that of a deep-fried coating in frozen coated food product (par fried, raw or full fried) that is microwave or oven heated. The following detailed description will describe this in the context of preferred compositions, but it will be understood by those skilled in the art that other materials and processes that are equivalent in result can be employed with equal facility.

[0012] The invention provides a coating mixture which can be applied to food products raw or at any degree of cooking doneness. Foods of this type are include many popular items, such as various frozen battered and/or breaded fish, chicken, other meat and vegetable products. The invention provides foods of this type having crispy textures after

cooking by the simplest of means by microwave, toaster oven or larger at home or by a food service for consumption. However, the crispy texture is particularly difficult to achieve when the coated food product is microwaved or oven baked and rarely if ever as crispy as fried foods. Another major challenge is to maintain the crispy texture after reconstitution for a longer time under heating lamp or at room temperature.

[0013] Traditional batters contain various flours, starches, dextrins, *etc.*, which have a tendency to become soggy or tough and chewy after microwaving or oven baking the frozen coated foods. The compositions of the invention can replace these conventional batters by replacing all or a suitable proportion of their ingredients to obtain the desired crispy texture. In this manner the invention avoids the needs of the prior art to use a stabilizer composition to pre-treat the meat or vegetable substrate or to use specialized packaging containing various susceptors for microwave heated coated food products. None have used this novel ingredient composition in the batter system.

[0014] This invention shows an innovative way to resolve the issues. By using potato fiber or potato protein or preferably the combination of both at usage level 1% to 75%, preferably from 5% to 70%, in the dry batter mix in addition to the common ingredients used in traditional batters, the end coated food products are able to give much improved crispy texture after microwaving or oven baking, similar to fried food texture. In preferred forms, the composition will contain at least 10% potato protein and/or fiber. Potato dextrins can also be used to good advantage in combination with the potato protein and/or fiber. In addition, the baking oven or microwave heated products can also remain crispy for a longer period of time at room temperature or under heating lamp. The coated food products with batters containing potato fiber and/or potato protein can also be fried for added benefit of crispy texture and remain crispy for an extended holding time. Another benefit of using the batter system containing potato fiber and/or potato protein is the low carbohydrate level in the batter and that could be used for people who prefer a low carbohydrate diet.

[0015] The invention enables the production of a variety of dry food mixes comprising, in addition to the potato fiber and/or potato protein necessary for the advantageous effect of

the invention, various food ingredients selected from among flavors, sweeteners such as sugars, colors, conditioners, leavening, flours such as from wheat, corn or rice, spices, herbs, salt and salt substitutes, added nutrients, thickeners such as gums and other hydrocolloids, acidulents, fats and oils, and the like. The ingredients will preferably be essentially dry and can be mixed, with components as needed or desired in any suitable dry blender, such as a V-blender or a ribbon mixer. Agglomeration is useful for many products. If desired, the dry ingredients can be premixed and hydrated for packaging. In some cases it will be desired to mix the ingredients in hydrated or partially hydrated form.

[0016] The following examples are provided to further illustrate the invention and some of its practical aspects and are not to be taken as limiting in any regard. Unless otherwise indicated all parts and percentages are based on the weight of the composition at the indicated stage in processing.

Example 1

Bakable and Microwavable Battered and Breaded Fish With Potato Fiber

[0017] <u>BATTER MIX INGREDIENTS</u>	<u>%</u>
Hard wheat flour	10.0
Rice flour	22.1
Paselli TM FP potato fiber*	10.0
Perfectamyl TM B1102 potato dextrin*	20.0
Perfectamyl TM FFCA modified potato starch*	10.0
Perfectacoat TM QS modified potato starch*	20.0
Paselli TM EZ 1080 potato starch*	2.0
Salt	5.0
Sodium acid pyrophosphate	0.5
Baking soda	0.2
<u>Xanthan gum</u>	<u>0.2</u>
<u>TOTAL</u>	<u>100.0</u>

*AVEBE America Inc, Princeton NJ USA

[0018] PREPARATION PROCEDURE

Add 990 ml water to 100 g dry batter mix and mix at low to medium speed for 5 min.

Predust partial defrosted frozen or fresh fish pieces with 50% wheat flour and 50%

Perfectamyl Gel modified potato starch.

Pass through batter and let drain.

Pass through seasoned homestyle bread crumbs.

Par fry at 375 F for 90-110 sec (for end product baking or microwaving). If end product is full fried, par fry at 375 F for 50 sec.

Freeze at -20 C.

Reconstitute by baking at 375 F for 16-20 min or microwaving for 45 –60 sec or till internal temperature reaching 160 F.

Example 2

Bakable and Microwavable Battered Chicken Tenders

With Potato Fiber and Potato Protein

[0019] <u>BATTER MIX INGREDIENTS</u>	<u>%</u>
Hard wheat flour	10.0
Rice flour	22.1
Paselli TM FP potato fiber	5.0
Potato protein	5.0
Perfectamyl TM B1102 potato dextrin	20.0
Perfectamyl TM FFCA modified potato starch	10.0
Perfectacoat TM QS modified potato starch	20.0
Paselli TM EZ 1080 potato starch	2.0
Salt	5.0
Sodium acid pyrophosphate	0.5
Baking soda	0.2
<u>Xanthan gum</u>	<u>0.2</u>
<u>TOTAL</u>	<u>100.0</u>

[0020] PREPARATION PROCEDURE

Add 890 ml water to 100 g dry batter mix and mix at low to medium speed for 5 min.

Predest partial defrosted frozen or fresh chicken breast meat with 50% wheat flour and 50% Perfectamyl Gel modified potato starch.

Pass through batter and let drain.

Roll the meat through another powder (50% wheat flour and 50% Perfectamyl Gel).

Batter again and drain.

Par fry at 375 F for 90-110 sec (for end product baking or microwaving). If end product is full fried, par fry at 375 F for 50 sec.

Freeze at -20 C.

Reconstitute by baking at 375 F for 16-20 min or microwaving for 45 -60 sec or till internal temperature reaching 160 F.

[0021] The above description is intended to allow the person skilled in the art to practice the invention. It is not intended to detail all possible applications, variations and modifications that will be apparent to the skilled worker upon reading the description. It is intended, however, that all such applications, variations and modifications be included in the scope of the invention as defined by the claims which follow.

Claims

1. A food ingredient composition for preparing a batter, which when used in frozen coated food products (par fried, raw or full fried) provides a crispy texture after microwaving or oven-baking, similar to that of deep fat fried coated foods, the composition comprising: a combination of dietary fiber (soluble and/or insoluble) (preferably potato fiber) and/or insoluble vegetable protein, preferably potato protein.
2. A process for preparing a coated food comprising coating a food with a composition as set forth in claim 1.
3. A process for preparing a food ingredient composition of claim 1, which comprises mixing the ingredients set out in claim 1 with other food materials.